

Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1. (Currently amended) A process for the recovery of an ethylene and propylene containing stream from a cracked gas resulting from cracking a hydrocarbon stream, ~~characterised in that~~ wherein the cracked gas is treated in an absorptive demethanizer with a C₄/C₅ solvent at a temperature between -10°C and -40°C to free the cracked gas from methane and hydrogen gas, whereafter the remaining stream is treated by distillation in a distillation unit to obtain a C₄/C₅ containing stream and the ethylene and propylene containing stream; whereafter the C₄/C₅ stream is treated with a hydrogen containing stream in a hydrogenation unit, whereafter a part of the hydrogenated C₄/C₅ stream is cooled to a temperature between -10°C and -40°C and recycled to the absorptive demethanizer and a part of the hydrogenated C₄/C₅ stream is separated.
2. (Currently amended) A process according to Claim 1 ~~characterised in that~~ wherein the C₄/C₅ stream is hydrogenated with the use of the hydrogen gas coming from the absorptive demethanizer.
3. (Currently amended) A process according to ~~any one of Claims 1-2, characterised in that~~ Claim 1, wherein the C₄/C₅ stream is substantially hydrogenated in the hydrogenation unit.
4. (Currently amended) A process according to ~~any one of Claims 1-3, characterised in that~~ Claim 1, wherein the C₄/C₅ stream is partly hydrogenated in the hydrogenation unit and part of the C₄/C₅ stream is separated after the hydrogenation unit and treated by catalytic cracking, whereafter an additional ethylene and propylene containing stream is obtained.

5. (Currently amended) A process according to ~~any one of Claims 1-4, characterised in that~~ Claim 1, wherein from the ethylene and propylene containing stream, being substantially free of hydrogen, acetylenes and dienes, ethylene and propylene are chemically absorbed in a solvent containing a compound derived from a metal of group 10 or 11 of the Periodic Table of the Elements, followed by recovery of ethylene and propylene from said solvent by heating and/or by reducing the pressure.
6. (Currently amended) A process according to ~~any one of Claims 1-5, characterised in that~~ Claim 1, wherein the propylene/ethylene ratio in the ethylene and propylene containing stream is higher than 0.55.
7. (Currently amended) A process according to Claim 4, ~~characterised in that~~ wherein the propylene/ethylene ratio in the combined ethylene and propylene containing stream is higher than 0.70.
8. (Currently amended) A recovery section of a hydrocarbon cracker comprising an absorptive demethanizer, a distillation unit and a hydrogenation unit wherein a process according to ~~any one of Claims 1-2~~ Claim 1 is applied.
9. (Currently amended) A recovery section according to Claim 8, ~~characterised in that~~ wherein the hydrogenation in the hydrogenation unit takes place with hydrogen gas from the absorptive demethanizer.
10. (Currently amended) A method to modify an existing hydrocarbon cracker by providing it with a recovery section according to ~~any one of Claims 8-9~~ Claim 8.
11. (New) A process according to Claim 2, wherein the C₄/C₅ stream is substantially hydrogenated in the hydrogenation unit.

12. (New) A process according to Claim 2, wherein the C₄/C₅ stream is partly hydrogenated in the hydrogenation unit and part of the C₄/C₅ stream is separated after the hydrogenation unit and treated by catalytic cracking, whereafter an additional ethylene and propylene containing stream is obtained.

13. (New) A process according to Claim 2, wherein from the ethylene and propylene containing stream, being substantially free of hydrogen, acetylenes and dienes, ethylene and propylene are chemically absorbed in a solvent containing a compound derived from a metal of group 10 or 11 of the Periodic Table of the Elements, followed by recovery of ethylene and propylene from said solvent by heating and/or by reducing the pressure.

14. (New) A process according to Claim 3, wherein from the ethylene and propylene containing stream, being substantially free of hydrogen, acetylenes and dienes, ethylene and propylene are chemically absorbed in a solvent containing a compound derived from a metal of group 10 or 11 of the Periodic Table of the Elements, followed by recovery of ethylene and propylene from said solvent by heating and/or by reducing the pressure.

15. (New) A process according to Claim 2, wherein the propylene/ethylene ratio in the ethylene and propylene containing stream is higher than 0.55.

16. (New) A process according to Claim 2, wherein the propylene/ethylene ratio in the combined ethylene and propylene containing stream is higher than 0.70.